

IN THE DRAWINGS

The attached sheets of drawings include changes to Figs. 5, 6, 7A-7C, and 8A-8G. These sheets, which include Figs. 5, 6, 7A-7C, and 8A-8G, replace the original sheets including Figs. 5, 6, 7A-7C, and 8A-8G.

Attachment: Replacement Sheets

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

The specification is amended by the present response to correct minor informalities.

Further, replacement Figures 5, 6, 7A-7C, and 8A-8G are submitted herein. Each of those replacement figures is now labeled as "Prior Art".

Claims 1-5 are pending in this application. Claims 1-5 were rejected under 35 U.S.C. § 103(a) as unpatentable over applicants' admitted art in view of U.S. patent 6,720,268 to Laermer et al. (herein "Laermer").

Addressing the above-noted prior art rejection, that rejection is traversed by the present response. Specifically, applicants respectfully submit no combination of teachings of the applied art fully meets each of the claimed features.

Independent claim 1 positively recites:

wherein the second high-frequency voltage has the same frequency as that of the first high-frequency voltage and has a phase which varies with a low-frequency signal, which is modulated by a predetermined modulation signal.

With reference to Figure 1 in the present specification as a non-limiting example, a second high-frequency voltage is provided through oscillator 20 and phase modulator 21. With the operations in the claimed invention the second high-frequency voltage has a phase that varies with the low-frequency signal; that is, the second high-frequency voltage is phase modulated (PM) by a low-frequency signal. Further, in the claimed invention the low-frequency signal itself is also modulated by a predetermined modulation signal.

With such a claimed structure, since the second high-frequency voltage is phase-modulated (PM) by a low-frequency signal, and since the low-frequency signal itself is also modulated by a predetermined modulation signal, the phase modulation angle of the second high-frequency signal varies over time, and as a result a position where plasma turns back

fluctuates instead of being fixed. Accordingly, a concentration of plasma can be avoided and a more uniform plasma can be realized by the claimed invention. Such results realized by the claimed invention are also discussed in the present specification at page 13, line 8 to page 15, line 1.

The admitted art and Laermer do not disclose or suggest the above-noted features in which (1) a second high-frequency voltage has a phase that varies with the low-frequency signal, and (2) the low-frequency signal itself is also modulated by a predetermined modulation signal.

With respect to the admitted art, as discussed in the present specification at page 3, lines 16-18 and with reference to Figure 5, the output amplitude of the oscillator 18 is constant, and therefore the phase shift $\Delta\theta$ of modulation by the phase modulator is also constant.

The outstanding rejection recognizes that the admitted art fails to teach the claimed feature:

wherein the second high-frequency voltage is the same frequency as that of the first high-frequency voltage and has a phase which varies with a low-frequency signal, which is modulated by a predetermined modulation signal[,]

and to overcome that recognized deficiency in the admitted art the outstanding rejection cites Laermer, and particularly at column 9, lines 1-61.¹ However, in that respect applicants submit Laermer does not overcome the recognized deficiencies in the admitted art.

At column 9, lines 1-61 Laermer discloses a method of anisotropic etching in which an etching step is subdivided into at least two etching segments between which an applied ion acceleration voltage is modified each time. In the second etching segment, a high-frequency

¹ Office Action of February 14, 2006, top of page 4.

AC voltage generated by a high-frequency generator 14 is amplitude-modulated (AM) by a low-frequency modulation voltage signal.

The teachings in Laermer are deficient in the following two respects in which they cannot cure the deficiencies of the admitted art.

First, with respect to independent claim 1, Laermer does not disclose that the low-frequency signal is itself modulated by a predetermined modulation signal. The outstanding rejection has not pointed to any specific disclosure in Laermer outside of column 9, lines 1-61 to disclose such a feature, and applicants respectfully submit that at column 9, lines 1-61 Laermer does not disclose or suggest that a low-frequency signal itself is modulated by a predetermined modulation signal. Thus, modulation of the low-frequency signal is neither disclosed nor suggested in neither Laermer nor the admitted art. For such reasons the claims define over the applied art.

Similarly to the above-noted limitation in independent claim 1, independent claim 2 recites “a low-frequency oscillator which generates a low-frequency signal which is modulated by a predetermined modulation signal”. Independent claims 4 and 5 also recite similar features as in independent claim 1 noted above. Thus, claims 2, 4, and 5 are also allowable for the reasons noted above.

Further, Laermer also does not disclose or suggest carrying out a *phase modulation* (PM) of the high-frequency voltage, as also recited in independent claim 1. Instead, as noted above, Laermer discloses an amplitude modulation of a high-frequency voltage. As noted above independent claim 1 recites “the second high-frequency voltage ... has a phase which varies with a low-frequency signal”. Independent claim 2 similarly recites “a phase modulator which modulates the phase of the high-frequency signal from the high-frequency oscillator with the low-frequency signal”. Independent claims 4 and 5 recite similar limitations as in independent claim 1 noted above. Such features differ from the teachings in

Laermer. Such features are also neither taught nor suggested by the admitted prior art. Thus, for these further reasons independent claims 1, 2, 4, and 5 distinguish over the applied art.

In such ways, the combination of teachings of the admitted art and Laermer do not fully meet each of the claim limitations in each of independent claims 1, 2, 4 and 5. Thus, those claims, and dependent claim 3, patentably distinguish over the combination of teachings of the admitted art in view of Laermer.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Surinder Sachar
Registration No. 34,423
Attorneys of Record

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 03/06)

I:\ATTYSNS\263791US-AM.DOC